

Hydrodynamic simulation of dilepton production with chiral symmetry restoration scenario

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We investigate the effect of chiral symmetry restoration on dilepton invariant mass spectra measured in high-energy heavy-ion collisions. The hadron properties such as the hadron spectra change when the chiral symmetry restores in the hot medium created in high-energy heavy-ion collisions. We analyze the dilepton invariant mass spectra with hadron spectra obtained from different chiral symmetry restoration scenarios focusing on the chiral mixing.

In our study, we run a hydrodynamic simulation with temperature dependent shear and bulk viscosities. We integrate the thermal dilepton and dilepton from the hadron spectral function to obtain the final dilepton invariant mass spectra. For the chiral symmetry restoration scenario, we compare the low energy mixing theorem and the vector-axial-vector mixing from a chiral effective field theory. We compare the invariant mass spectra from hadron spectral function with and without the chiral mixing and discuss the effect of chiral symmetry restoration from each scenario.

Theory / experiment

Theory

Group or collaboration name

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